Neutron Activation Diagnostics in Deuterium Gas-Puff Experiments on the 3 MA GIT-12 Z-Pinch\textsuperscript{1} J Cikhardt, D Klir, K Rezac, B Cikhhardtova, J Kravari, P Kubes, O Sila, FEE CTU in Prague, Czech Republic, A V Shishlov, R K Cherdizov, F I Fursov, V A Kokshenev, N E Kurmaev, A YU Labetsky, N A Ratakhin, IHCE, Tomsk, Russia, G N Dudkin, A A Garapatsky, V N Padalko, V A Varlachev, NRTPU, Tomsk, Russia, K Turek, NPI ASCR, Prague, Czech Republic — The experiments with a deuterium z-pinch on the GIT-12 generator at IHCE in Tomsk were performed in the frame of the Czech-Russian agreement. A set of neutron diagnostics included scintillation time-of-flight detectors, bubble detectors, and several kinds of threshold nuclear activation detectors in the order to obtain information about the yield, anisotropy, and spectrum of the neutrons produced by a deuterium gas-puff. The average neutron yield in these experiments was of the order of $10^{12}$ neutrons per a single shot. The energy spectrum of the produced neutrons was evaluated using neutron time-of-flight detectors and a set of neutron activation detectors. Because the deuterons in the pinch achieve multi-MeV energies, non-DD neutrons are produced by nuclear reactions of deuterons with a stainless steel vacuum chamber and aluminum components of diagnostics inside the chamber. An estimated number of the non-DD was of the order of 10\textsuperscript{11}.

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